

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-30 (canceled)

31. (Currently Amended) A scanning laser device for ophthalmic surgery, the device comprising:

a laser source for generating a beam of laser pulses, each pulse having a ~~Gaussian-like~~ tissue ablation profile;

scanning optics for directing the beam of the laser pulses;

a computer device coupled with the optics for directing each laser pulse to a location on the cornea;

the computer device comprising one or more digital storage media having embedded therein programming code for programming one or more processors to perform certain operations, including:

a first executable program for calculating a pulse deposit pattern by calculating the location of each laser pulse on the tissue based on overlap of the ~~Gaussian-like~~ ablation profile, such that upon ablation according to said calculated pulse deposit pattern, a smooth ablated surface is provided on the tissue; and

a second executable program for directing each of the lasers pulses to locations on the tissue in accordance with the pulse locations provided by the first executable program; and

an eye movement tracking indicator and optics for directing the laser pulses to be deposited to intended locations on a cornea by adjusting one or more optics when the eye moves during the eye surgery, the eye movement tracking indicator and optics comprising:

an eye positional indicator; and

laser beam deflecting optics for deflecting the laser beam to follow the movement of the eye.

32. (Previously Presented) A scanning laser device as in claim 31, wherein a diameter of the laser beams is in a range of around 0.01 to 4.0 mm at the cornea.

33. (Currently Amended) A scanning laser device as in claim 31, wherein the ~~Gaussian-like~~ tissue ablation profile of the laser pulse includes a Gaussian shape or a super-Gaussian shape or a combination thereof.

34. (Previously Presented) A scanning laser device as in claim 31, wherein the scanning optics comprise at least one galvanometric scanner.

35. (Previously Presented) A scanning laser device as in claim 31, wherein the pulse deposit pattern comprises laser pulse deposit locations sufficiently far apart from each other so that the tissue ablation profiles of at least one pair of consecutive pulses have no overlap.

36. (Previously Presented) A scanning laser device as in claim 31, wherein the pulse deposit pattern comprises laser pulse deposit locations sufficiently close to each other so that the tissue ablation profiles of at least one pair of consecutive pulses overlap.

37. (Previously Presented) A scanning laser device as in claim 31, wherein the first executable program includes:

a first subroutine for calculating an ablation depth per layer of the deposit pattern;

a second subroutine for calculating the number of layers required to ablate total depth of the predetermined shape of corneal tissue; and

a third subroutine for determining an area boundary for each layer of the deposit pattern.

38. (Previously Presented) A scanning laser device as in claim 31, wherein the scanning optics for directing each of the laser pulses provide sequential scanning such that each of the laser pulses is deposited in an orderly sequence until the predetermined pulse deposit pattern is scanned.

39. (Previously Presented) A scanning laser device as in claim 38, wherein the orderly sequence includes a linear scan, a circular scan, or a spiral scan, or combinations thereof.

40. (Previously Presented) A scanning laser as in claim 31, wherein the scanning optics for directing each of the laser pulses provide a random scan sequence such that laser pulses in the predetermined pulse deposit pattern are deposited randomly.

41. (Previously Presented) A scanning laser as in claim 31, wherein the eye positional indicator comprises one or more distinct marks placed on the eye, a pupil of the eye, or a sclera of the eye, or combinations thereof.